

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2004-106074

(43)Date of publication of application : 08.04.2004

(51)Int.Cl.

B81C 1/00
H01L 21/3065

(21)Application number : 2002-268817

(71)Applicant : SONY CORP

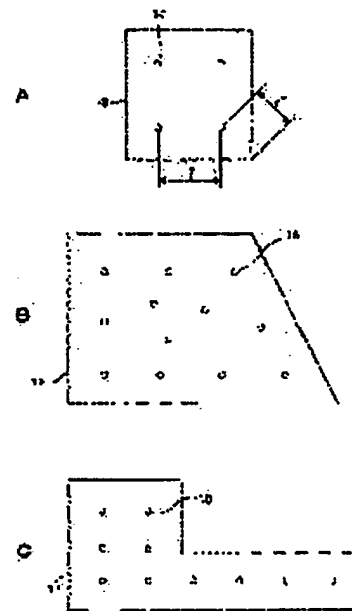
(22)Date of filing : 13.09.2002

(72)Inventor : IKEDA KOICHI
KINOSHITA TAKASHI

(54) PRODUCTION METHOD FOR HOLLOW STRUCTURE AND PRODUCTION METHOD FOR MEMS ELEMENT

(57)Abstract:

PROBLEM TO BE SOLVED: To optimize a pattern layout of gas introduction holes in an etching process for a sacrifice layer in the production of a MEMS element.
SOLUTION: A production method for hollow structure comprises the steps of forming a drive member on an upper surface of the sacrifice layer formed on a substrate and forming a plurality of the gas introduction holes in the drive member, feeding etching gas through the gas introduction holes 18 and selectively removing the sacrifice layer by etching to form a space between the substrate and the drive member. The plurality of the gas introduction holes 18 are formed over the whole area of the sacrifice layer, and at least mutual distances between the gas introduction holes 18 are equalized.



LEGAL STATUS

[Date of request for examination] 23.02.2005

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

CLAIMS

[Claim(s)]

[Claim 1]

The process which forms two or more gas installation holes in the covering member formed so that the sacrifice layer on a substrate might be enclosed,

Etching gas is supplied through said gas installation hole, and it has the process which carries out etching removal only of said sacrifice layer alternatively, and forms a cavity between said substrates and said covering members,

While forming said two or more gas installation holes corresponding to the whole region of said sacrifice layer, it forms so that the gas installation hole with which a mutual distance of this gas installation hole becomes equal at least may exist all over the districts.

The manufacture approach of the hollow structure characterized by things.

[Claim 2]

The distance of the gas installation hole nearest to a sacrifice layer outside and this sacrifice layer outside is larger than twice, and the mutual minimum distance of said gas installation hole is carried out.

The manufacture approach of the hollow structure according to claim 1 characterized by things.

[Claim 3]

The silicon ingredient which contains a silicon ingredient or mixture in said sacrifice layer is used, and it is XeF₂ to said etching gas. Gas is used.

The manufacture approach of the hollow structure according to claim 1 or 2 characterized by things.

[Claim 4]

The process which forms a driving member in the top face of the sacrifice layer formed on the substrate, and forms two or more gas installation holes in this driving member,

Etching gas is supplied through said gas installation hole, and it has the process which carries out etching removal only of said sacrifice layer alternatively, and forms space between said substrates and said driving members,

While forming said two or more gas installation holes corresponding to the whole region of said sacrifice layer, it forms so that the gas installation hole with which a mutual distance of this gas installation hole becomes equal at least may exist all over the districts.

The manufacture approach of the MEMS component characterized by things.

[Claim 5]

The distance of the gas installation hole nearest to a sacrifice layer outside and this sacrifice layer outside is larger than twice, and the mutual minimum distance of said gas installation hole is carried out.

The manufacture approach of the MEMS component according to claim 4 characterized by things.

[Claim 6]

The silicon ingredient which contains a silicon ingredient or mixture in said sacrifice layer is used, and it is XeF₂ to said etching gas. Gas is used.

The manufacture approach of the MEMS component according to claim 4 or 5 characterized by things.

